

REMARKS

The Official Action dated June 25, 2009 has been carefully considered. Accordingly, it is believed that the present Amendment responds fully to the outstanding matters and places this application in condition for allowance. Reconsideration is respectfully requested.

By the present Amendment, the claims and Abstract are amended for matters of form. Additionally, claims 11 and 33 are amended to depend from claim 1. Claims 14, 23-32 and 40 are cancelled. It is believed the present changes do not involve any introduction of new matter, whereby entry is in order and is respectfully requested.

In the Official Action, the Examiner made the restriction and election requirements final and has limited examination to group I, claims 1-10, and particularly claims 1-5 and 8 which read on the elected species. Applicants request rejoinder of claims 6, 7, 9-22 and 33-62, which all now depend directly or indirectly from claim 1, upon allowance of claim 1.

The Examiner indicated that a new oath or declaration is required as non-initialed changes were made to the Declaration dated August 18, 2006. A new Declaration is currently being executed by the inventors and will be submitted once it is received by the undersigned.

The Examiner noted that the Abstract should avoid legal phraseology and therefore the Abstract has been amended to omit use of "said."

Claims 1, 2 and 5 were objected to as not consistently referring to "vesicle-attached linkers" and referring to "said linkers." These claims, along with several other claims, have been amended to consistently refer to "vesicle-attached linkers" and "surface-immobilized linkers." Accordingly, the objection to the claims has been overcome.

Claims 2 and 8 were rejected under 35 U.S.C. §112, second paragraph, on the basis that reference to "linker" in claim 2, without distinguishing between surface-immobilized and vesicle-attached, and recitation of "said hybridization" in claim 8 rendered these claims

vague and indefinite. While Applicants traverse this rejection, claim 2 has been amended to consistently refer to “vesicle-attached linkers” and “surface-immobilized linkers” and claim 8 has been amended to depend from claim 4 which recites hybridization. Accordingly, claims 2 and 8 are definite and the rejection under 35 U.S.C. §112, second paragraph, has been overcome. Reconsideration is respectfully requested.

Claims 1-5 and 8 were rejected under 35 U.S.C. §102(a) and (c) as being anticipated by the Bredehorst et al published PCT Application WO 02/081739 A2 (WO ‘739). The Examiner relied on the disclosure of WO ‘739 at page 5, lines 17-27 and Figs 1-4 and asserted that the vesicles are directly attached to the surface by surface-immobilized linkers (analyte and/or capture oligonucleotides) with vesicle-attached linkers (affinity components) and optionally by vesicle-attached linkers to another vesicle (referring to Fig. 4).

This rejection is traversed and reconsideration is respectfully requested. As defined by claim 1, the present invention is directed to a biologically-functional, surface-immobilized multilayer structure which comprises a plurality of vesicles sufficiently spaced apart from said surface. The vesicles are directly attached to the structure by surface-immobilized linkers with vesicle-attached linkers and, optionally, by vesicle-attached linkers to another vesicle and the vesicles comprise a biologically active compound which provides the structure with biological functionality. WO ‘739 does not disclose such a structure.

That is, WO ‘739 discloses liposome-linked closely spaced array electrode assays for detecting and quantifying nucleic acids. While WO ‘739 employs surface bound capture oligonucleotide, target DNA is reacted with the surface-bound capture oligonucleotide, and a resulting region of DNA double helix is used to bind an affinity liposome containing redox mediators for release. See, for example, Fig. 1. Alternatively, as shown in Fig. 2, the liposomes may include oligonucleotides 9 for binding with target DNA as well. In Fig. 3,

hapten and anti-hapten antibodies are employed while in Fig. 4, low molecular weight affinity components and bridging molecules are employed.

However, the liposomes of WO '739 are not "directly attached to the structure by surface-immobilized linkers with vesicle-attached linkers" as required by present claim 1 as a target DNA is required by WO '739. Specifically, according to WO '739, target DNA is reacted with the surface-bound capture oligonucleotide, and a resulting region of DNA double helix is used to bind an affinity liposome. Further, according to the present invention, the biologically active compound, for example, reactive with analyte, is contained within the vesicles, while according to WO '739, the analyte in the form of target DNA reacts with the surface-immobilized oligonucleotide.

Anticipation under 35 U.S.C. §102 requires that each and every element as set forth in the claims is found, either expressly or inherently described, in a single prior art reference. *In re Robertson*, 169 F.3d 743, 745 (Fed. Cir. 1999). In view of the failure of WO '739 to disclose vesicles directly attached to the structure by surface-immobilized linkers with vesicle-attached linkers, WO '739 does not expressly or inherently describe each and every element as set forth in claim 1. Accordingly, WO '739 does not anticipate claim 1, or claims 2-5 and 8 dependent thereon. Reconsideration is respectfully requested.

Claims 1-5 and 8 were also rejected on the ground of non-statutory obviousness-type double patenting as being unpatentable over claims 1-22 of co-pending application Serial No. 10/590,877. Although this is a provisional rejection, Applicants traverse the rejection on the basis that the present claims are patentably distinct from claims 1-22 of the co-pending application. That is, claims 1-22 of the co-pending application require a specific oligonucleotide, namely, one having at least two hydrophobic anchoring moieties, which is not required by nor obvious over the present claims. Accordingly, withdrawal of the obviousness-type double patenting rejection is respectfully requested.

It is believed that the above represents a complete response to Official Action, and places the present application in condition for allowance. In the event there are any outstanding issues relating to this application, the Examiner is urged to telephone the undersigned to efficiently resolve the same. Reconsideration and an early allowance are requested.

Please charge any fees required in connection with the present communication, or credit any overpayment, to Deposit Account No. 503915.

Respectfully submitted,

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